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Total Number of Pages in This Submission

Application Number

10/549,506
(371 of PCT/DK04/00193)

Filing Date

371(c) date: July 7, 2006

First Named Inventor

K.V. Andersen

Group Art Unit

Examiner Name

Attorney Docket Number

0272us310

ENCLOSURES (check all that apply)

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☐ Amendment / Response
 - ☐ After Final
 - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☒ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
- ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53

- ☐ Assignment Papers (for an Application)
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition Routing Slip (PTO/SB/69) and Accompanying Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Small Entity Statement
- ☐ Request for Refund

- ☐ After Allowance Communication to Group
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Additional Enclosure(s) (please identify below):

- Form PTO/SB/08A-B (6 pp.)
- 66 cited references (ref. Nos. 17-82)
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Remarks

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Firm
or
Individual name

Joanne R. Petithory Maxygen, Inc. Reg. No. 42,995

Signature

Joanne R. Petithory

Date

July 10, 2006

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Attorney Docket No: 0272us310

On: 11 July 2006

By: Ann Massey
Ann Massey

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:
ANDERSEN, Kim Vilbour, *et al.*

Examiner:

Application No.: 10/549,506
(371 of PCT/DK04/00193 filed March 22, 2004)

Art Unit:

371(c) date: July 7, 2006

For: FVII OR FVIIA VARIANTS

INFORMATION DISCLOSURE
STATEMENT UNDER
37 CFR § 1.97 AND § 1.98

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Sir:

The references cited on the attached form PTO/SB/08A-B are being called to the attention of the Examiner. Copies of cited references numbered 17- 82 are enclosed. Since the international application was filed after June 30, 2003, copies of the cited US patents and US published applications (references 1-16) are not provided herein, pursuant to MPEP § 609 III A(2).

It is respectfully requested that the cited information be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR 1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

ANDERSEN, Kim Vilbour, *et al.*

Attorney Docket No.: 0272us310

Application No.: 10/549,506 (371 of PCT/DK04/00193)

Information Disclosure Statement

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It is believed that no fee is required for submission of this statement, since it is being submitted prior to the first Office Action on the merits. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 50-0990. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Date: July 10, 2006

Maxygen, Inc.
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515 Galveston Drive
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Customer No. 30560

Respectfully submitted,



Joanne R. Petithory, Ph.D.

Reg. No. 42,995



Substitute for form 1449A-B/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known

Application Number	10/549,506 (371 of PCT/DK04/00193)
International Application Filing Date	March 22, 2004
371(c) Date	July 7, 2006
First Named Inventor	ANDERSEN, Kim Vilbour
Group Art Unit	
Examiner Name	
Attorney Docket Number	0272us310

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM/DD/YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appeal
		Number	Kind Code (if known)			
	1	4,784,950		Hagen <i>et al.</i>	11/15/1998	
	2	4,904,584		Shaw	02/27/1990	
	3	5,041,376		Gething <i>et al.</i>	08/20/1991	
	4	5,180,583		Hedner	01/19/1993	
	5	5,225,537		Foster	07/06/1993	
	6	5,288,629		Berkner	02/22/1994	
	7	5,460,950		Barr <i>et al.</i>	10/24/1995	
	8	5,580,560		Nicolaisen <i>et al.</i>	12/03/1996	
	9	5,648,254		Mulvihill <i>et al.</i>	07/15/1997	
	10	5,824,634		Merchant	10/20/1998	
	11	5,861,374		Berkner <i>et al.</i>	01/19/1999	
	12	5,891,843		Turecek <i>et al.</i>	04/06/1999	
	13	5,965,425		Barr <i>et al.</i>	10/12/1999	
	14	5,986,079		Barr <i>et al.</i>	11/16/1999	
	15	6,013,620		Turecek <i>et al.</i>	01/11/2000	
	16	6,017,882		Nelsestuen	01/25/2000	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM/DD/YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
	17	EP	0 370 205	A2	Kyowa Hakko Kogyo Co., Ltd.	05/30/1990		
	18	EP	0 512 011	B1	Immuno Aktiengesellschaft	11/11/1992		
	19	WO	88/10295	A1	Novo Industri A/S	12/29/1988		

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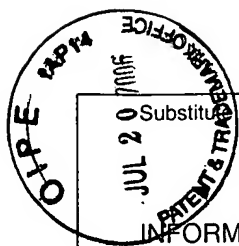


Substitution for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>	Complete if Known	
	Application Number	10/549,506 (371 of PCT/DK04/00193)
	International Application Filing Date	March 22, 2004
	371(c) Date	July 7, 2006
	First Named Inventor	ANDERSEN, Kim Vilbour
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	Examiner Name	
	Attorney Docket Number	0272us310

	20	WO	91/11514	A1	Zymogenetics, Inc.	08/08/1991		
	21	WO	92/15686	A1	Zymogenetics, Inc.	09/17/1992		
	22	WO	94/27631	A1	Zymogenetics, Inc.	12/08/1994		
	23	WO	96/00577	A1	COR Therapeutics, Inc.	01/11/1996		
	24	WO	98/32466	A1	Polymasc Pharmaceuticals Plc	07/30/1998		
	25	WO	98/35026	A1	Novo Nordisk A/S	08/13/1998		
	26	WO	99/03498	A1	Novo Nordisk A/S	01/28/1999		
	27	WO	99/03887	A1	Bolder Biotechnology, Inc.	01/28/1999		
	28	WO	99/20767	A1	Regents of the University of Minnesota	04/29/1999		
	29	WO	99/66031	A2	Baxter Aktiengesellschaft	12/23/1999		
	30	WO	00/26230	A1	Novo Nordisk A/S	05/11/2000		
	31	WO	00/26354	A1	Novo Nordisk A/S	05/11/2000		
	32	WO	00/28065	A1	Novo Nordisk A/S	05/18/2000		
	33	WO	00/54787	A1	The Children's Hospital of Philadelphia	09/21/2000		
	34	WO	00/66753	A2	Regents of the University of Minnesota	11/09/2000		
	35	WO	01/58935	A2	Maxygen ApS	08/16/2001		
	36	WO	01/83725	A1	Novo Nordisk A/S	11/08/2001		
	37	WO	02/077218	A1	Novo Nordisk A/S	10/03/2002		
	38	WO	02/22776	A2	Novo Nordisk A/S	03/21/2002		

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	39	WO	02/38162	A1	Scripps Reseach Institute	05/16/2002		
	40	WO	03/027147	A2	Novo Nordisk A/S	04/03/2003		
	41	WO	03/037932	A2	Novo Nordisk A/S	05/08/2003		
	42	WO	03/055512	A1	Novo Nordisk A/S	07/10/2003		
	43	WO	03/093465	A1	Maxygen ApS	11/13/2003		
	44	WO	2004/029091	A2	Maxygen ApS	04/08/2004		
	45	WO	2004/083361	A2	Maxygen Holdings Ltd.	09/30/2004		

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
	46	Bharadwaj, D., <i>et al.</i> , "Factor VII Central—A Novel Mutation in the Catalytic Domain that Reduces Tissue Factor Binding, Impairs Activation by Factor XA, and Abolishes Amidolytic and Coagulant Activity," <i>J. Biological Chemistry</i> 271(48):30685-30691 (1996)	
	47	Bjoern, S., <i>et al.</i> , "Human Plasma and Recombinant Factor VII – Characterization of O-Glycosylations at Serine Residues 52 and 60 and Effects of Site-Directed Mutagenesis of Serine 52 to Alanine," <i>J. Biological Chemistry</i> 266(17):11051-11057 (1991)	
	48	Chang, J-Y., <i>et al.</i> , "Replacing the First Epidermal Growth Factor-like Domain of Factor IX with That of Factor VII Enhances Activity In Vitro and in Canine Hemophilia B," <i>J. Clin. Invest.</i> 100(4):886-892 (1997)	
	49	Chang, Y-J., <i>et al.</i> , "Engineered Recombinant Factor VII Q ²¹⁷ Variants with Altered Inhibitor Specificities," <i>Biochemistry</i> 38:10940-10948 (1999)	
	50	Cheung, W.F. <i>et al.</i> , "Localization of an Epitope of Calcium-Dependent Monoclonal Antibody to the N-Terminal Region of the Gla Domain of Human Factor VII", <i>Thrombosis Research</i> , 79(2):199-206 (1995).	

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51	Cheung, W.F. <i>et al.</i> , "Localization of a metal-dependent epitope to the amino terminal residues 33-40 of human factor IX", <i>Thrombosis Research</i> , 80(5):419-427 (1995).
52	Database EMBL, "Gallus gallus anticoagulant protein C precursor (PROC) mRNA, complete cds", Database Accession No. AF465270, Feb. 2 2003.
53	Database UNIPROT, "Coagulation factor VII (EC 3.4.21.21) (Serum prothrombin conversion accelerator)", Database Accession No. P22457, Aug. 1 1991.
54	Dickinson, C.D., <i>et al.</i> , "Identification of surface residues mediating tissue factor binding and catalytic function of the serine protease factor VIIa," <i>Proc. Natl. Acad. Sci. USA</i> 93:14379-14384 (1996).
55	Dickinson, C.D., <i>et al.</i> , "Active Site Modification of Factor VIIa Affects Interactions of the Protease Domain with Tissue Factor," <i>J. Biological Chemistry</i> 272(32):19875-19879 (1997).
56	Dickinson, C. D. <i>et al.</i> , "Influence of Cofactor Binding and Active Site Occupancy on the Conformation of the Macromolecular Substrate Exosite Of Factor VIIa", <i>J. Mol. Biol.</i> 277:959-971 (1998).
57	Hedner, U. "NovoSeven as a universal haemostatic agent." <i>Blood Coagul. Fibrinolysis</i> 11 Suppl 1:S107-S111 (2000).
58	Higashi, S. <i>et al.</i> "Molecular mechanism of tissue factor-mediated acceleration of factor VIIa activity," <i>J. Biol. Chem.</i> 271(43):26569-74 (1996).
59	Huang, Q., <i>et al.</i> , "Substrate Recognition by Tissue Factor-Factor VIIa - Evidence for Interaction of Residues Lys ¹⁶⁵ and Lys ¹⁶⁶ of Tissue Factor with the 4-Carboxyglutamate-Rich Domain of Factor X," <i>J. Biological Chemistry</i> 271(36):21752-21757 (1996).
60	Iino, M., <i>et al.</i> , "Functional Consequences of Mutations in Ser-52 and Ser-60 in Human Blood Coagulation Factor VII," <i>Archives Biochem. Biophys.</i> 352(2):182-192 (1998).
61	Iakhiaev, A. <i>et al.</i> "The role of catalytic cleft and exosite residues of factor VIIa for complex formation with tissue factor pathway inhibitor", <i>Thromb. Haemost.</i> 85(3):458-463 (2001).

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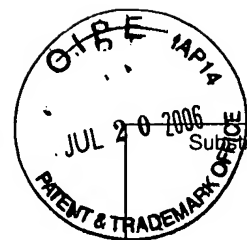


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62	Jin, J., <i>et al.</i> , "Factor VIIa's First Epidermal Growth Factor-like Domain's Role in Catalytic Activity," <i>Biochemistry</i> 38:1185-1192 (1999).
63	Jin, J. <i>et al.</i> , "Four Loops of the Catalytic Domain of Factor VIIa Mediate the Effect of the First EGF-like Domain Substitution on Factor VIIa Catalytic Activity", <i>J. Mol. Biol.</i> 307:1503-1517 (2001).
64	Kelly, C.R., <i>et al.</i> , "Ca ²⁺ Binding to the First Epidermal Growth Factor Module of Coagulation Factor VIIa Is Important for Cofactor Interaction and Proteolytic Function," <i>J. Biological Chemistry</i> 272(28):17467-17472 (1997)
65	Kemball-Cook, G., <i>et al.</i> , "Coagulation Factor VII Gln ¹⁰⁰ Arg—Amino Acid Substitution at the Epidermal Growth Factor 2-Protease Domain Interface Results in Severely Reduced Tissue Factor Binding and Procoagulant Function," <i>J. Biological Chemistry</i> 273(14):8516-8521 (1998).
66	Leonard, B.J.N., <i>et al.</i> , "Activation and Active Site Occupation Alter Conformation in the Region of the First Epidermal Growth Factor-like Domain of Human Factor VII," <i>J. Biological Chemistry</i> 275(45):34894-34900 (2000).
67	Mayer, S.A. "Ultra-early hemostatic therapy for intracerebral hemorrhage," <i>Stroke</i> 34(1):224-229 (2003).
68	Nelsestuen, G.L. <i>et al.</i> "Elevated function of blood clotting factor VIIa mutants that have enhanced affinity for membranes. Behavior in a diffusion-limited reaction," <i>J. Biol. Chem.</i> 276(43):39825-39831 (2001).
69	Neuenschwander, P.F. <i>et al.</i> , "Alteration of the Substrate and Inhibitor Specificities of Blood Coagulation Factor VIIa: Importance of Amino Acid Residue K192", <i>Biochemistry</i> 34:8701-8707 (1995).
70	Persson, E., <i>et al.</i> , "Site-directed mutagenesis but not γ -carboxylation of Glu-35 in factor VIIa affects the association with tissue factor," <i>FEBS Letters</i> 385:241-243 (1996).
71	Persson, E., "Characterization of the interaction between the light chain of factor VIIa and tissue factor," <i>FEBS Letters</i> 413:359-363 (1997).

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72	Persson, E., <i>et al.</i> , "Ca ²⁺ Binding to the First Epidermal Growth Factor-like Domain of Factor VIIa Increases Amidolytic Activity and Tissue Factor Affinity," <i>J. Biological Chemistry</i> 272(32):19919-19924 (1997).
73	Petersen, L.C., <i>et al.</i> , "Binding of Zn ²⁺ to a Ca ²⁺ loop allosterically attenuates the activity of factor VIIa and reduces its affinity for tissue factor," <i>Protein Science</i> 9:859-866 (2000).
74	Petrovan, R.J., <i>et al.</i> , "Role of Residue Phe ²²⁵ in the Cofactor-Mediated, Allosteric Regulation of the Serine Protease Coagulation Factor VIIa," <i>Biochemistry</i> 39:14457-14463 (2000).
75	Petrovan, R.J., <i>et al.</i> , "Residue Met(156) contributes to the labile enzyme conformation of coagulation factor VIIa" <i>J. Biol. Chem.</i> 276(9):6616-6620 (2001).
76	Ruf, W., <i>et al.</i> , "Importance of Factor VIIa Gla-Domain Residue Arg-36 for Recognition of the Macromolecular Substrate Factor X Gla-Domain," <i>Biochemistry</i> 38:1957-1966 (1999)
77	Shah, A.M., <i>et al.</i> , "Manipulation of the membrane binding site of vitamin K-dependent proteins: Enhanced biological function of human factor VII," <i>Proc. Natl. Acad. Sci. USA</i> 95:4229-4234 (1998).
78	Shobe, J., <i>et al.</i> , "Macromolecular Substrate Affinity for the Tissue Factor-Factor VIIa Complex is Independent of Scissile Bond Docking," <i>J. Biological Chemistry</i> 274(34):24171-24175 (1999).
79	Shobe, J., <i>et al.</i> , "Regulation of the Catalytic Function of Coagulation Factor VIIa by a Conformational Linkage of Surface Residue Glu 154 to the Active Site," <i>Biochemistry</i> 38:2745-2751 (1999).
80	Sorensen, B.B. <i>et al.</i> "Incorporation of an active site inhibitor in factor VIIa alters the affinity for tissue factor," <i>J. Biol. Chem.</i> 272(18):11863-11868 (1997).
81	Sridhara S. <i>et al.</i> "Activation of a recombinant human factor VII structural analogue alters its affinity of binding to tissue factor," <i>Am. J. Hematol.</i> 53(2):66-71 (1996).
82	Zhang, E. <i>et al.</i> , "Structure of Extracellular Tissue Factor Complexed with Factor VIIa Inhibited with a BPTI Mutant," <i>J. Mol. Biol.</i> 285(5):2089-2104 (1999).

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